CHAPTER 6: PREVENTION PROGRAM (PROGRAM 2)

6.1 ABOUT THE PROGRAM 2 PREVENTION PROGRAM

Most Program 2 processes are likely to be relatively simple and may be located at small businesses. EPA developed the Program 2 prevention program by identifying the basic elements that are the foundation of sound prevention practices — safety information, hazard review, operating procedures, training, maintenance, compliance audits, and accident investigation. By meeting other Federal regulations, state laws, industry codes and standards, and good engineering practices, you probably have already met most of the Program 2 prevention elements requirements.

As important as each of the elements is, you will not gain the full benefit from them unless you integrate them into a risk management system that you implement on an on-going basis. For example, the hazard review must be built on the safety information; the results of the hazard review should be used to revise and update operating and maintenance procedures. Workers must be trained in these procedures and must use them every day.

You will have substantially less documentation and recordkeeping responsibilities for a Program 2 process than you will for a Program 3 process. In addition, EPA is working with various industry sectors to develop industry-specific risk management programs for Program 2 and 3 processes. The industry-specific guidance will help by giving standard elements for the sector that can be adopted for a particular business in the sector. If there is an industry-specific program for your sector, you can skip this chapter and use that guidance.

There are seven elements in the Program 2 prevention program, which is set forth Subpart C of part 68. Exhibit 6-1 sets out each of the seven elements and corresponding section numbers.

You must integrate these seven elements into a risk management program that you and your staff implement on a daily basis. Understanding and managing risks must be part of the way you operate. Doing so will provide benefits beyond accident prevention. Preventive maintenance and routine inspections will reduce the number of equipment failures and down time; well-trained workers, aware of optimum operating parameters, will allow you to gain the most efficient use of your processes and raw materials.

6.2 SAFETY INFORMATION (§ 68.48)

The purpose of this requirement is to ensure that you understand the safety-related aspects of the equipment and processes you have, know what limits they place on your operations, and adopt accepted standards and codes where they apply. Having up-to-date safety information about your process is the foundation of an effective prevention program. Many elements (especially the hazard review) depend on the accuracy and thoroughness of the information this element requires you to provide.

EXHIBIT 6-1
SUMMARY OF PROGRAM 2 PREVENTION PROGRAM

Number	Section Title
§ 68.48	Safety Information
§ 68.50	Hazard Review
§ 68.52	Operating Procedures
§ 68.54	Training
§ 68.56	Maintenance
§ 68.58	Compliance Audits
§ 68.60	Incident Investigation

WHAT DO I NEED TO DO?

You must compile and maintain safety information related to the regulated substances and process equipment for each Program 2 process. You probably have much of this information already as a result of complying with OSHA standards or other rules. EPA has limited the information to what is likely to apply to the processes covered under the Program 2 program. Exhibit 6-2 gives a brief summary of the safety information requirements for Program 2.

HOW DO I START?

MSDSs. If you are subject to this rule, you are also subject to the requirements to maintain Material Safety Data Sheets under the OSHA Hazard Communication Standard (HCS) (29 CFR 1910.1200). If you do not have an MSDS for a regulated substance, you should contact your supplier or the manufacturer for a copy. Because the rule states that you must have an MSDS that meets OSHA requirements, you may want to review the MSDS to ensure that it is, in fact, complete. Besides providing the chemical name, the MSDS for a regulated substance (or a mixture containing the regulated substance) must describe the substance's physical and chemical characteristics (e.g., flash point, vapor pressure), physical hazards (e.g., flammability, reactivity), health hazards, routes of entry, exposure limits (e.g., the OSHA permissible exposure level), precautions for safe handling, generally applicable control measures, and emergency and first aid procedures. (See 29 CFR 1910.1200(g) for the complete set of requirements for an MSDS.)

EXHIBIT 6-2
SAFETY INFORMATION REQUIREMENTS

You must compile and maintain this safety information:	You must ensure:	You must update the safety information if:
U Material Safety Data Sheets **U** Maximum intended inventory **U** Safe upper and lower parameters **U** Equipment specifications **U** Codes & standards used to design, build, and operate the process	**U** That the process is designed in compliance with recognized codes and standards	**U** There is a *major change* at your business that makes the safety information inaccurate

Maximum Inventory. You must document the maximum intended inventory of any vessel in which you store or process a regulated substance above its threshold quantity. If you are not sure of the capacity of the vessel, you can obtain this information from the manufacturer of the vessel. In some cases, this information will be attached to the vessel itself.

You may want to check with any trade association or standards group that develops standards for your industry to determine if there are any limitations on inventories. For example, in some cases the maximum capacity of a tank may be 10,000 gallons, but an industry standard may recommend that the tank never be filled to more than 85 percent capacity. If you follow the standard, your maximum inventory would be 8,500 gallons.

Storage and Process Limits. You must document the safe upper and lower temperatures and pressures, process flows (if applicable), and compositions (if applicable) for your process.

Every substance has limits on the temperature and pressures at which it can be stored or used; these limits are determined by both the properties of the substance and the vessels it which it is kept. If you do not know these limits, you should contact your vendor, the substance manufacturer, or your trade association. They will be able to provide the data you need. It is important that you know these limits so you can take action to avoid situations where these limits may be exceeded. Many people are aware of the dangers of overheating their vessels, but extreme low temperatures also may pose hazards you should know about.

If you are moving substances through pipes or hoses, you need to define safe temperatures and pressures for that movement; again, these limits will be determined by both the substance and the piping. For example, the substance may tolerate high

pressures, but the pipes may have structural limits. To operate safely, you must have this information. The pipe manufacturer will be able to provide these data.

If you are reacting chemicals, you need to understand whether the reaction will be compromised if you vary the temperature or pressure. Again, it is important to define both the upper and lower limits. Reactions may become unstable outside of their limits and compromise safety. Check with the substance manufacturer for information on this subject if you are uncertain about the limits for particular substances you are using.

The requirement to compile and maintain information on process flows and compositions will apply to you if you transfer substances through piping or hoses and if you mix or react the substance. It is important in these cases that you understand the safe limits for flow and composition. The pipe or hose vendors will be able to provide you with the maximum flow rates that their products are designed to handle. You must also be aware of any hazards that could be created if your processes are contaminated; for example, if your substance or equipment could be contaminated by water, you must know whether that creates different hazards, such as corrosion.

For most Program 2 processes, reacting or mixing will not be an issue, but if you are mixing or reacting regulated substances, you should understand what will happen if the composition varies. If you are uncertain about the effects of changing composition and do not have a chemist or chemical engineer on your staff, the substance manufacturer should be able to help you.

Equipment Specifications. You must document the specifications of any equipment you use to store, move, or react regulated substances in a covered process. Equipment specifications will usually include information on the materials of construction, actual design, and tolerances. The vendor should be able to provide this information; you may have the specifications in your files from the time of purchase. You are not expected to develop engineering drawings of your equipment to meet this requirement, but you must be able to document that your equipment is appropriate for the substances and activities for which it is used, and you must know what the limits of the equipment are.

Specifications are particularly important if your vessels or pipes are not specifically designed for your type of operation. Substances may react with certain metals or corrode them if water is introduced. You should be sure that the vessels you purchase or lease are appropriate for your operations. Understanding equipment specifications will help you when you need to buy replacement parts. Any such parts must be appropriate for your existing equipment and your use of that equipment. It is not sufficient to replace parts with something that "fits" unless the new part meets the specifications; substitution of inappropriate parts may create serious hazards.

Codes and Standards. You must document the codes and standards you used to design and build your facility and that you follow to operate. These codes will probably include the electrical and building codes that you must comply with under

state or local laws. Your equipment vendors will be able to provide you with information on the codes they comply with for their products. Exhibit 6-3 lists some codes that may be relevant to your operation. Note that the National Fire Protection Association (NFPA) codes may have been adopted as state or local codes. The American National Standards Institute (ANSI) is an umbrella standards-setting organization, which imposes a specific process for gaining approval of standards and codes. ANSI codes may include codes and standards also issued by other organizations.

EXHIBIT 6-3
CODES AND STANDARDS

ORGANIZATION	SUBJECT/CODES
American National Standards Institute (ANSI)	Piping, Electrical, Power wiring, Instrumentation, Lighting, Product storage and handling, Insulation and fireproofing, Painting and coating, Ventilation, Noise and Vibration, Fire protection equipment, Safety equipment, Pumps, Compressors, Motors, Refrigeration equipment, Pneumatic conveying
American Society of Mechanical Engineers (ASME)	Power boilers, Pressure vessels, Compressors, Shell and tube exchangers, Vessel components, General design and fabrication codes
American Petroleum Institute (API)	Welded tanks, Rotating equipment, Bulk liquid storage systems
National Fire Protection Association (NFPA)	Fire pumps, Flammable liquid code, LNG storage and handling, Plant equipment and layout, Electrical system design, Shutdown systems, Pressure relief equipment, Venting requirements, Gas turbines and engines, Cooling towers, Storage tanks
American Society for Testing Materials (ASTM)	Inspection and testing, Noise and vibration, Materials of construction, Piping materials and systems, Instrumentation

HOW DO I DOCUMENT ALL THIS?

EPA does not expect you to develop piles of papers to document your safety information. Your MSDS(s) are usually three or four pages long. You only have to keep them on file, as you already do for OSHA. Equipment specifications are usually on a few sheets or in a booklet provided by the vendor; you need only keep these on file. You can probably document the other information on a single sheet that simply lists each of the required items and any codes or standards that apply. See Exhibit 6-4 for a sample. Maintain that sheet in a file and update it whenever any item changes or new equipment is added.

EXHIBIT 6-4

SAMPLE SAFETY INFORMATION SHEET

PROPANE STORAGE	
MSDS Propane	On file (1994)
Maximum Intended Inventory	400,000 pounds
Temperature	Upper: max 110EF Lower: min -15EF
Pressure	Upper: 240 psi @ 110EF Lower: 35 psi @ -15EF
Flow Rate	Loading: 100 GPM (max) Unloading: 265 GPM (max)
Vapor Piping	250 PSIG
Liquid Piping and Compressor Discharge	350 PSIG
Safety Relief Valves	Each relieves 9,250 SCFM/air RV 1 replaced 9/96 RV 2 replaced 6/97 RV 3 replaced 8/98
Excess Flow Valve	3", closes at 225 GPM with 100 PSIG inlet 2", closes at 100 GPM with 100 PSIG inlet 2", closes at 34,500 SCFH with 100 PSIG inlet
Emergency Shutoff Valve	ESV 1 1/4", closes at 26,000 SCFH with 100 PSIG inlet ESV 2", closes at 225 GPM with 100 PSIG inlet
Codes and Standards	Designed under NFPA-58-1985
Piping Design	ASME B31-3
Tank Design	ASME NB# 0012

The equipment specifications and list of standards and codes will probably meet the requirement that you ensure that your process is designed in compliance with recognized and generally good engineering practices. If you have any doubt that you are meeting this requirement, your trade association may be helpful in determining if there are practices or standards that you are not aware of that may be useful in your operation.

After you have documented your safety information, you should double check it to be sure that the files you have reflect the equipment you are currently using. It is important to keep this information up to date. Whenever you replace equipment, be sure that you put the new equipment specifications in the file and consider whether any of your other prevention elements need to be reviewed to reflect the new equipment.

WHERE TO GO FOR MORE INFORMATION

MSDSs. MSDSs are available from a number of websites. The University of Vermont provides access to three university-maintained MSDS collections through its website, http://www.hazard.com. The on-line databases usually have multiple copies of MSDSs for each substance and can help you find an MSDS that is well organized and easy to read. EPA has not verified the accuracy or completeness of MSDSs on any of these sites nor does it endorse any particular version of an MSDS. You should review any MSDS you use to ensure that it meets the requirements of OSHA's hazard communication standard (29 CFR 1910.1200).

Guidance and Reports. Although the reports below target the chemical industry, you may find useful information in them:

- Guidelines for Process Safety Documentation, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- Loss Prevention in the Process Industries, Volumes I, II, and III, Frank P. Lees, Butterworths: London 1996.

6.3 HAZARD REVIEW (§ 68.50)

For a Program 2 process, you must conduct a hazard review. EPA has streamlined the process hazard analysis (PHA) requirement of OSHA's PSM standard to create a requirement that will detect process hazards at the simpler processes in Program 2. The hazard review will help you determine whether you are meeting applicable codes and standards, identify and evaluate the types of potential failures, and focus your emergency response planning efforts. Most Program 2 processes will covered by guidance for industry-specific risk management program guidance documents that will provide help with this hazard review.

WHAT DO I NEED TO DO?

The hazard review is key to understanding how to operate safely on a continuous basis. You must identify and review specific hazards and safeguards for your Program 2 processes. EPA lists the types of hazards and safeguards in the rule. Exhibit 6-5 summarizes things you must do for a hazard review.

EXHIBIT 6-5
HAZARD REVIEW REQUIREMENTS

Conduct a review & identify...	Use a guide for conducting the review.	Document results & resolve problems.	Update your hazard review.
U The hazards associated with the Program 2 process & regulated substances. **U** Opportunities for equipment malfunction or human error that could cause a release. **U** Safeguards that will control the hazards or prevent the malfunction or error. **U** Steps to detect or monitor releases.	**U** You may use any checklist (e.g., one provided in an industry-specific risk management program) to conduct the review. **U** For a process designed to industry standards like NFPA-58 or Federal /state design rules, check the equipment to make sure that it's fabricated, installed, and operated properly.	**U** Your hazard review must be documented and you must show that you have addressed problems.	**U** You must update your review at least once every five years or whenever there is a major change in the process. **U** You must resolve problems identified in the new review *before* you startup the changed process.

HOW DO I START?

There are three possible approaches to conducting a hazard review; which you use will depend on your particular situation.

Processes designed to legal or industry-specific codes. If your process was designed and built to comply with a federal or state standard for your industry or an industry-specific design code, your hazard review will be relatively simple. The standard-setting organization has already conducted a hazard review for that type of process, identified the hazards, and developed equipment and operating requirements to minimize the risks. You can use the code or standard as a checklist. The purpose of your review is to ensure that your equipment still meets the code and is being operated in appropriate ways.

If you have a single vessel or other simple equipment, you can probably conduct the review relatively quickly. You will need a copy of the code or standards and someone who is familiar with both the requirements and your equipment to ensure that the person can reasonably assess your compliance. If you have an operating engineer, he or she may be able to conduct the review. If you do not have any technical staff, your vendor or trade association may be able to help you. If you seek outside help, however, work with whoever conducts the review so that you understand what they find.

Industry checklist/industry-specific risk management program. If there is not a single code or standard you must meet, you may want to use a checklist developed by a third party, such as a national trade association. EPA and others are developing guidance for industry-specific risk management programs for some industry sectors. These models will include checklists you can use as the basis of your review.

The trade association or model developers will have already identified what your hazards are and what types of equipment and procedures you should be using. Your job is to use the checklist to decide if you meet the requirements and, if you do not, whether you should. In some cases, your individual circumstances may make a checklist item unnecessary.

As with an industry-specific standard, if you have an operating engineer or an operator knowledgeable about the equipment and process, he or she may be able to conduct the review. If you do not have any technical staff, your vendor or trade association may be able to help you. If you seek outside help, however, work with whoever conducts the review so that you understand what they find.

If you use the standards and models, you may have to modify them to address the site-specific concerns. Never use someone else's checklist blindly. You must be sure that it addresses all of your potential problems.

Develop your own checklist. If you have no industry standards or checklists, you will have to conduct your own hazard review. As discussed in the requirements section (Exhibit 6-5), the review must identify:

- The hazards of the regulated substance and process;
- Possible equipment failures or human errors that could lead to a release;
- Safeguards used or needed to prevent failures or errors; and
- Steps used or needed to detect or monitor releases.

You will probably be able to define the hazards of the substance using the MSDS, which lists the hazardous properties of the substance. The hazards of the process (as opposed to the equipment) will be limited for most Program 2 processes. However, if you react or mix chemicals, or your process could be contaminated by water or other chemicals, you may have process hazards that you need to identify. Your safety information should help here.

The next step may be to conduct a simplified "What If" process, where your technical staff ask "What if it stops or fails?" for each piece of equipment and "What if the operator fails to do this?" for each procedure. Most industry standards and codes have already considered these questions and developed responses in terms of design standards and operating practices. If you are doing this on your own, the important thing to remember is that you should not assume that an equipment failure or human error will not happen. Ask whether the safeguards that you think protect

the equipment or operator are really adequate. In many cases, they may be adequate, but it is useful to ask, to force yourself to examine your own assumptions.

From this exercise, you should develop a checklist of items that you need to take. For example, if you have listed mixing tank pump failure as a possible problem, the checklist might then include the following items to check: pump maintenance plans, tank high-level alarms, overflow tanks. You would also want to ask what effect a power outage would have on the pump. You may want to consider the particular procedures that have to be followed for safe operation of the equipment and ask what will happen if an operator omits a step or does them out of order. Do your procedures address these possible problems? Will failure of the pump affect the safe operating limits you have documented in your safety information?

When you finish the checklist, it is useful to show it to your operators. They are familiar with the equipment and may be able to point out other areas of concern. A review with your vendors or trade association may also help; their wider knowledge of the industry may give them ideas about failures you may not have experienced or considered.

You may also use any of the other techniques described in Appendix 7A to Chapter 7. These techniques generally require more trained staff and more time; they are particularly appropriate for processes that involve reacting or manufacturing chemicals.

CAUTION

Whichever approach you use, you should consider reasonably anticipated external events as well as internal failures. If you are in an area subject to earthquakes, hurricanes, or floods, you should examine whether your process would survive these natural events without releasing the substance. In your hazard review, you should consider the potential impacts of lightning strikes and power failures. If your process could be hit by vehicles, you should examine the consequences of that. If you have anything near the process that could burn, ask yourself what would happen if the fire affected the process. For example, if you have a propane tank and an ammonia tank at your facility and they are close to each other, when you look at the ammonia tank you should consider what a fire in the propane tank would do to the ammonia. These considerations may not be part of standard checklists or model programs.

In addition, you may want to check with vendors, trade associations, or professional organizations to determine if there are new standards for safety systems or designs, or if there are detection or mitigation systems that may be applicable to your process that you should consider when you evaluate your existing equipment. If your equipment is designed and built to an earlier version of a standard, you should consider whether upgrades are needed.

RESPONDING TO FINDINGS

The person or persons who conduct the review should develop a list of findings and recommendations. You must ensure that problems identified are addressed in a timely manner. EPA does not require that you implement every recommendation. It is up to you to decide which recommendations are necessary and feasible. You may decide that other steps are as effective as the recommended actions or that the risk is too low to merit the expense. You must, however, document your decision on each recommendation. If you are implementing a recommendation, you should document the schedule for implementation. If you are taking other steps to address the problem or decide the problem does not merit action, you should document the basis for your decision.

DOCUMENTING THE REVIEW

You should maintain a copy of the checklist you used. The easiest way to document findings is to enter them on the checklist after each item. This approach will give you a simple, concise way of keeping track of findings and recommendations. You may also want to create a separate document of recommendations that require implementation or other resolution. Exhibit 6-6 is an extract from the checklist developed for the guidance for a propane risk management program; it provides a sample of the level of detail needed in a checklist and a format for documenting your findings.

EXHIBIT 6-6
SAMPLE CHECKLIST (EXTRACT)

Piping, Equipment, Container Appurtenances	Yes/No/NA	Comments
1. On installations with stairways and ladders, are catwalks provided so personnel need not walk on any portion of the vessel?		
2. Is piping designed in accordance with ASME B31.3, 1993 edition? Pump and compressor discharge and liquid transfer lines shall be suitable for a working pressure of 350 psi (3-2.8.2(a) of NFPA 58, 1995 edition) Vapor piping shall be suitable for a working pressure of 250 psi (3-2.8.2(b of NFPA 58, 1995 edition)		
3. Is the capacity of the pressure relief devices designed as specified in 2-3.2 and 3-2.5 of NFPA 58, 1995 edition?		

Piping, Equipment, Container Appurtenances	Yes/No/NA	Comments
4. Are appropriate level gauges, temperature indicators, and pressure gauges installed on fixed ASME storage tanks as specified in 2-3.3.2(b), 2-3.3.3, 2.3.4, 2.3.5 of NFPA 58, 1995 edition?		
5. Are appropriate hydrostatic relief valves installed between every section of liquid piping, which can be blocked by manual or automatic valves as specified in 2-4.7 and 3-2.9 of NFPA 58, 1995 edition?		
6. Is appropriate corrosion protection installed as required by 3-2.12 of NFPA 58, 1995 edition?		
7. On installations with pumps, are they installed as specified in 3-2.13 of NFPA 58, 1995 edition? On installations with an automatic bypass valve, are they installed on the discharge of the pump as specified in 3-2.13(b)(1) and 2-5.2 of NFPA 58, 1995 edition?		

UPDATES

You must update the review every five years or whenever a major change in a process occurs. For most Program 2 processes, major changes are likely to occur infrequently. If you install a new tank next to an existing one, you would want to consider whether the closeness of the two creates any new hazards. Replacing a tank with an identical tank would not be considered a change. Replacing a tank with a new type of tank should trigger an update. Changing process composition or safe operating limits is considered a major change. Even if changes prove to be minor, you should examine the process carefully before starting. Combining old and new equipment can sometimes create unexpected hazards. You will operate more safely if you take the time to evaluate the hazards before proceeding.

WHERE TO GO FOR MORE INFORMATION

Although the reports below target the chemical industry, you may find useful information in them:

- *Guidelines for Hazard Evaluation Procedures, 2nd Ed. with Worked examples*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1992.
- *Evaluating Process Safety in the Chemical Industry*, Chemical Manufacturers Association.
- *Loss Prevention in the Process Industries*, Volumes I, II, and III Frank P. Lees, Butterworths: London 1996.

- *Management of Process Hazards* (R.P. 750), American Petroleum Institute.
- *Risk-Based Decision Making (Publication 16288)*, American Petroleum Institute.

6.4 OPERATING PROCEDURES (§ 68.52)

Written operating procedures describe in detail what tasks a process operator must perform, set safe process operating parameters that must be maintained, and set safety precautions for operations and maintenance activities. These procedures are the guide for telling your employees how to work safely everyday, giving everyone a quick source of information that can prevent or mitigate the effects of an accident, and providing workers and management with a standard against which to assess performance.

WHAT DO I NEED TO DO?

You must prepare written operating procedures that give workers clear instruction for safely conducting activities involving a covered process. You may use standardized procedures developed by industry groups or provided in industry-specific risk management program guidances as the basis for your operating procedures, but be sure to check that these standard procedures are appropriate for your activities. If necessary, you must update your Program 2 operating procedures whenever there is a major change and before you startup the changed process. Exhibit 6-7 briefly summarizes what your operating procedures must address.

EXHIBIT 6-7
OPERATING PROCEDURES REQUIREMENTS

Steps for each operating phase	Other Procedures
UInitial startup	UConsequences of deviating
UNormal operations	USteps to avoid, correct deviations
UTemporary operations	UEquipment inspections
UEmergency shutdown	
UEmergency operations	
UNormal shutdown	
UStartup following a normal or emergency shutdown or a major change	

Your operating procedures must be:

- Appropriate for your equipment and operations;
- Complete; and
- Written in language that is easily understood by your operators.

The procedures do not have to be long. If you have simple equipment that requires a few basic steps, that is all you have to cover.

HOW DO I START?

If you already have written procedures, you may not have to do anything more. Review the procedures. You may want to watch operators performing the steps to be sure that the procedures are being used and are appropriate. Talk with the operators to identify any problems they have identified and any improvements they may have made. When you are satisfied that they meet the criteria listed above, you are finished. You may want to check them against any recommended procedures provided by equipment manufacturers, trade associations, or standard setting organizations, but you are not required to do so. You are responsible for ensuring that the procedures explain how to operate your equipment and processes safely.

If you do not have written procedures, you may be able to review your standard procedures with your operators and write them down. You also may want to check with equipment manufacturers, trade associations, or standard setting organizations. They may have recommended practices and procedures that you can adapt. Do not accept anyone else's procedures without checking to be sure that they are adequate and appropriate for your particular equipment and uses and are written in language that your operators will understand. You may also want to review any requirements imposed under state or federal rules. For example, if you are subject to federal rules for loading and unloading of hazardous materials, those rules may dictate some procedures. Copies of these rules are sufficient for those operations if your operators can understand and use them.

WHAT DO THESE PROCEDURES MEAN?

The rule lists eight procedures. Not all of them may be applicable to you. The following is a brief description to help you decide whether you need to develop procedures for each item. If a particular element does not apply, do not spend any time on it. We do not expect you to create a document that is meaningless to you. You should spend your time on items that will be useful to you.

Initial Startup. This item applies primarily to facilities that process or use substances and covers all the steps you need to take before you start a process for the first time. You should include all the steps needed to check out equipment as well as the steps needed to start the process itself. If you simply store a regulated substance, there is no startup. Warehouses, for example, will probably not have procedures for startup. Retailers who store a substance and download it should have procedures for checking out and loading the vessel for the first time for this item.

Normal Operations. These procedures should cover your basic operations. If you are a warehouse, these would include stacking, moving, and repackaging, if you do that. For retailers, they would cover loading and downloading. For users, the procedures would include all the steps operators take to check the process and ensure that equipment is functioning properly and substances are flowing or mixing

appropriately. These are your core procedures that you expect your operators to follow on a daily basis to run your processes safely.

Temporary Operations. These operations are short-term; they will usually occur either when your regular process is down or when additional capacity is needed for a limited period. The procedures should cover the steps you need to take to ensure that these operations will function safely. The procedures will generally cover pre-startup checks and determinations (e.g., have you determined what the maximum flow rate will be). The actual operating procedures for running the temporary process must be written before the operation is put into place.

This item may apply to most facilities. Even warehouses may need to consider procedures to ensure that if a new substance or product is brought into the warehouse for temporary storage, the necessary steps are taken before that storage to ensure that it is safe (e.g., barrels are not stacked too high or located with incompatible substances). If it is possible that you will operate your process in a way that is not covered under normal operations, you should have procedures for temporary operations. If you will simply shutdown your process (e.g., stop unloading the substance), you can ignore this item.

Emergency Shutdowns and Operations. These procedures cover the steps you need to take if you must shutdown your process quickly. For most Program 2 facilities, these procedures will be brief because shutting a process down will be little different in an emergency than in ordinary circumstances; you will simply shut off the flow or stop any unloading or loading. For warehouses, they may not apply. If you have a more complex process (e.g., one that operates under high pressure or temperature), you will need procedures to ensure that you can shutdown safely. Normally you gradually reduce flows, depressurize, and lower temperatures. If you need to do any of these quickly, you must have procedures that identify the steps workers should take to carry out these operations safely.

Normal Shutdown. These procedures apply mainly to facilities that process or use regulated substances. They may apply to you even if you only store a substance and you empty the tank for cleaning. These procedures probably will not apply to warehouses unless they repackage.

These procedures should provide all the steps needed to stop a process safely. For a complex process or one that operates under extreme conditions, shutdown may take considerable time and may be hazardous. The procedures should set out the time that should be taken and the checks that must be made before proceeding to the next steps.

Startup following a normal or emergency shutdown or a major change. These procedures may be similar to those for initial startup. Startup procedures following normal shutdown may include fewer equipment checks because you may not need to check equipment on a frequent basis. You should include all the steps your workers should take to ensure that the process can operate safely. Startup after an emergency shutdown will generally require more checks to ensure that valves that were closed

are open and that they and other equipment are still functioning properly. These procedures will be limited if you only store a substance; they may not apply to warehouses in most instances.

Consequences of Deviations. Your operating procedures should tell the workers what will happen if something starts to go wrong. For example, if the pressure or temperature begins to rise or fall unexpectedly or the flow rate from one feed suddenly drops sharply, the operator must know (1) whether this poses a problem that must be addressed, and (2) what steps to take to correct the problem or otherwise respond to it. Your safety information will have defined the safe operating limits for your substances and processes; the hazard review will have defined the possible consequences and the steps needed to prevent a deviation from causing serious problems. You should include this information in each of the other procedures (startup, normal operations, shutdowns), rather than as separate documents.

If your substance is one that has a distinctive odor, color, or other characteristic that operators will be able to sense, you should include in your procedures information about what to do if they notice leaks. Frequently, people are the most sensitive leak detectors. Take advantage of their abilities to catch leaks before they become serious.

Equipment Inspections. You should include steps for routine inspection of equipment by operators as part of your other procedures. These inspections cover the items that operators should look for on a daily basis to be sure that the equipment is running safely (e.g., vibration checks). These inspections are not the same as those detailed checks that maintenance workers will perform, but rather are the "eyeball," "sound," and "feel" tests that experienced operators do, often without realizing it. Your operators, your vendors, and your trade association can help you define the things that should trigger concern: When is a small leak at a seal normal; when is it a cause of concern? How much vibration is normal? What does a smoothly running motor sound like?

UPDATING PROCEDURES

You must update your procedures whenever you change your process in a way that alters the steps needed to operate safely. If you add new equipment, you will need to expand your procedures or develop a separate set to cover the new items. Whenever you change your safety information you should review your procedures to be sure that they are still appropriate. Anytime you conduct a hazard review, check your operating procedures as you implement changes to address hazards.

WHAT KIND OF DOCUMENTS DO I HAVE TO KEEP?

You must maintain your current set of operating procedures. You are not required to keep old versions; in fact, you should avoid doing so because keeping copies of outdated procedures may cause confusion. You should date all procedures so you will know when they were last updated.

WHERE TO GO FOR MORE INFORMATION

Although the reports below target the chemical industry, you may find useful information in them:

- *Guidelines for Process Safety Fundamentals for General Plant Operations*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Guidelines for Safe Process Operations and Maintenance*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995
- *Guidelines for Writing Effective Operating and Maintenance Procedures*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1996.

6.5 TRAINING (§ 68.54)

Training programs often provide immediate benefits because trained workers have fewer accidents, damage less equipment, and improve operational efficiency. Training gives workers the information they need to understand how to operate safely and why safe operations are necessary. A training program, including refresher training, is the key to ensuring that the rest of your prevention program is effective. You already have some type of training program because you must conduct training to comply with OSHA's Hazard Communication Standard (29 CFR 1910.1200).

WHAT DO I NEED TO DO?

You must train all new workers in your operating procedures developed under the previous prevention program element; if any of your more experienced workers need training on these procedures, you should also train them. Any time the procedures are revised, you must train everyone using the new procedures. At least once every three years, you must provide refresher training on the operating procedures even if they have not changed. The training must cover all parts of the operating procedures, including information on the consequences of deviations and steps needed to address deviations.

For workers already operating a process, you may certify in writing that the employees have the "required knowledge, skills, and abilities to safely carry out the duties and responsibilities as provided in the operating procedures" (§ 68.54(a)). This "grandfather clause" means that you do not need to conduct additional training for workers you employed prior to June 21, 1999, who have the appropriate knowledge and skills to operate covered processes safely, in accordance with the operating procedures. This certification should be kept in your files; you do not need to submit it to EPA.

You are not required to provide a specific amount of training or type of training. You should develop a training approach that works for you. If you are a small facility, one-on-one training and on-the-job training may work best. Larger facilities may want to provide classroom training or video courses developed by vendors or trade associations before moving staff on to supervised work. You may have senior operators present the training or use trainers provided by vendors or other outside sources. The form and the length of the training will depend on your resources and your processes. If you can teach someone the basics in two hours and move them on to supervised work, that is all right. The important thing is that your workers understand how to operate safely and can carry out their tasks properly. We are interested in the results of the training, not the details of how you achieve them. Find a system that works for you. Exhibit 6-8 lists things that you may find useful in developing your training program.

You are also required to ensure that each worker trained has understood the training and is competent to operate the process safely. You may decide what kind or kinds of competency testing to use. Observation by a senior operator may be appropriate in many cases. If you provided classroom training, you may want to use both testing and demonstration or observation. You are required to report in the RMP on the type(s) of competency testing you use.

EXHIBIT 6-8
TRAINING CHART

UWho needs training?	Clearly identify the employees who need to be trained and the subjects to be covered.
UWhat are the objectives?	Specify learning objectives, and write them in clear, measurable terms before training begins. Remember that training must address the process operating procedures.
UHow will you meet the training objectives?	Tailor the specific training modules or segments to the training objectives. Enhance learning by including hands-on training like using simulators whenever appropriate. Make the training environment as much like the working environment as you can, consistent with safety. Allow your employees to practice their skills and demonstrate what they know.
UIs your training program working?	Evaluate your training program periodically to see if your employees have the skills and know the routines required under your operating procedures. Make sure that language or presentation are not barriers to learning. Decide how you will measure your employees' competence.
UHow will your program work for new hires and refresher training?	Make sure all workers – including maintenance and contract employees – receive initial and refresher training. If you make changes to process chemicals, equipment, or technology, make sure that involved workers understand the changes and the effects on their jobs.

HOW DOES THIS TRAINING FIT WITH OTHER REQUIRED TRAINING?

You are required by OSHA to provide training under the Hazard Communication Standard (29 CFR 1910.1200); this training covers the hazards of the chemicals and steps to take to prevent exposures. DOT has required training for loading and unloading of hazardous materials (49 CFR part 172, subpart H). Some of that training will cover items in your operating procedures. You do not need to repeat that training to meet EPA's requirements. You may want to integrate the training programs, but you do not have to do so.

WHAT KIND OF DOCUMENTATION DO I NEED TO KEEP?

In the RMP, you are required to report on the date of the most recent review or revision of your training program. You are also required to report on the type of training required (e.g., classroom or on-the-job) and the type of competency testing used. You should keep on site any current training materials or schedules used. The rule does not require you to keep particular records of your training program. It is enough for you to have on site information that supports what is reported in the RMP and your implementation of the training program overall. You may want to keep an attendance log for any formal training courses and refresher training to ensure that everyone who needs to be trained is trained. Such logs will help you perform a compliance audit or demonstrate compliance with the rule although you are not required to keep logs for this rule.

WHERE TO GO FOR MORE INFORMATION

- *Guidelines for Process Safety Fundamentals for General Plant Operations*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Guidelines for Technical Planning for On-Site Emergencies*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Federally Mandated Training and Information* (Publication 12000), American Petroleum Institute.

6.6 MAINTENANCE (§ 68.56)

Preventive maintenance, inspection, and testing of equipment is critical to safe operations. Waiting for equipment to fail often means waiting for an accident that could harm people and the environment. Further, a thorough maintenance program will save you money by cutting down-time caused by equipment failures. Your hazard review and safety information will have identified equipment that is critical to safe operations. You should use that information to build your maintenance program.

WHAT DO I NEED TO DO?

You must prepare and implement procedures for maintaining the mechanical integrity of process equipment, and train your workers in the maintenance procedures. You may use procedures or instructions from equipment vendors, in Federal or state regulations, or in industry codes as the basis of your maintenance program. You should develop a schedule for inspecting and testing your equipment based on manufacturers' recommendations or your own experience if that suggests more frequent inspection or testing is warranted. Exhibit 6-9 briefly summarizes the elements of a maintenance program that would satisfy EPA's rule.

HOW DO I START?

Your first step will probably be to determine whether you already meet all these requirements. If you review your existing written procedures and determine that they are appropriate, you do not need to revise or rewrite them. If your workers are already trained in the procedures and carry them out, you may not need to do anything else.

If you do not have written procedures, you will need to develop them. Your equipment vendors may be able to provide procedures and maintenance schedules. Using these as the basis of your program is acceptable unless your use varies from that contemplated by the vendor or manufacturer (see below). Your trade association may also be able to help you with industry-specific checklists. If there are existing industry standards, your trade association can provide you with the references. Copies of these may form the basis for your maintenance program. If there are federal or state regulations that require certain maintenance, you should use these as well.

EXHIBIT 6-9
MAINTENANCE GUIDELINES

Written procedures	Training	Inspection & testing
U You may use procedures provided by the vendor or trade association, etc., as the basis for your program. If you choose to develop your own, you must write them down.	U Train process maintenance employees in process hazards and how to avoid or correct an unsafe condition. U Make sure this training covers the procedures applicable to safe job performance.	U Inspect & test process equipment. U Use recognized and generally accepted good engineering practices. U Follow a schedule that matches the manufacturer’s recommendations or that prior operating experience indicates is necessary.

You need to determine if procedures provided by vendors, manufacturers, trade associations, or others are appropriate for your operation. If your safety information indicates that you are operating in a standard way (e.g., using only parts designed for refrigeration service in your cold storage system), you may assume that these other procedures will work for you. If you are using equipment for purposes other than those for which it was designed, you need to decide whether your use changes the kinds of maintenance required.

TRAINING

Once you have written procedures, you must ensure that your maintenance workers are trained in the procedures and in the hazards of the process. As with the training discussed in the previous section, how you provide this training is up to you. We believe that you are in the best position to decide how to train your workers. Vendors may provide the training or videos; you may already provide training on hazards and how to avoid or correct them as part of Hazard Communication Standard training under OSHA regulations. You do not need to repeat this training to comply with this rule.

If you hire contractors to do your maintenance, you should ensure that they are trained to carry out the procedures. Under the rule, any maintenance contractor is required to ensure that each contract maintenance worker is trained to perform the maintenance procedures developed by the facility. You can help this process by providing training or developing agreements with the contractor that assure you that only trained workers will be sent to your site. For any outside worker, you must ensure that they are informed of the hazards of your particular process. If you have standard equipment and hire contractors that specialize in servicing your types of processes, you can ensure their knowledge through agreements with the contractor.

INSPECTION AND TESTING

You must establish a schedule for inspecting and testing equipment associated with covered processes. The frequency of inspections and tests must be consistent with manufacturer's recommendations, industry standards or codes, good engineering practices, and your prior operating experience. In particular, you should use your own experience as a basis for examining any schedules recommended by others. Many things may affect whether a schedule is appropriate. The manufacturer may assume a constant rate of use (e.g., the amount of substance pumped per hour). If your use varies considerably, the variations may affect the wear on the equipment. Extreme weather conditions may also impact wear on equipment.

Talk with your operators as you prepare or adopt these procedures and schedules. If their experience indicates that equipment fails more frequently than the manufacturer expects, you should adjust the inspection schedule to reflect that experience. Your hazard review will have identified these potential problem areas as well and should be used as you develop schedules. For example, if you determine that corrosion is one of the hazards of the process, your schedule must address inspections for

corrosion and replacement before failure. Your trade association may also be able to provide advice on these issues.

WHAT KIND OF DOCUMENTATION MUST I KEEP?

In the RMP, you are required to report on the date of the most recent review or revision of your maintenance procedures and the date of the most recent equipment inspection or test and equipment inspected or tested. You must keep on site your written procedures and schedules as well as any agreements you have with contractors. The rule does not require that you keep particular records of your maintenance program. It is enough for you to have on site information that supports what is reported in the RMP and your implementation of the maintenance program overall. For example, you may want to keep maintenance logs to keep track of when inspections and tests were done.

WHERE TO GO FOR MORE INFORMATION

Codes and Standards: The following groups develop codes and standards that may help you determine the appropriate frequency and methods to use for testing and inspection: National Board Inspection Code, the American Society for Testing and Material, American Petroleum Institute, National Fire Protection Association, American National Standards Institute, American Society of Mechanical Engineers.

Guidance and Reports. Although the reports below target the chemical industry, you may find useful information in them:

- *Guidelines for Equipment Reliability Data with Data Tables*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1989.
- *Guidelines for Process Safety Documentation*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1995.
- *Pressure Vessel Inspection Code: Maintenance Inspection, Rating, Repair, and Alteration* (API 510), American Petroleum Institute.
- *Tank Inspection, Repair, Alteration, and Reconstruction (Std 653)*, American Petroleum Institute.

Q & A
MAINTENANCE

Q. I have an chlorine tank for water treatment. I lease the tank from the chlorine supplier, who does all the maintenance. My staff never work on the equipment. How I do meet this requirement?

A. As part of your contract with the supplier, you should gain an agreement, in writing, that the supplier will provide maintenance and trained maintenance workers that meet the requirements of 40 CFR 68.56.

6.7 COMPLIANCE AUDITS (§ 68.58)

Any risk management program should be reviewed periodically to ensure that employees and contractors are implementing it properly. A compliance audit is a way for you to evaluate and measure the effectiveness of your risk management program. An audit reviews each of the prevention program elements to ensure that they are up-to-date and are being implemented and will help you identify problem areas and take corrective actions. As a result, you'll be running a safer operation.

WHAT DO I NEED TO DO?

At least every three years, you must certify that you have evaluated compliance with for the prevention program requirements for each covered process. At least one person on your audit team must be knowledgeable about the covered process. You must develop a report of your findings, determine and document an appropriate response to each finding, and document that you have corrected any deficiency.

You must review compliance with each of the required elements of the prevention program. Because Program 2 processes are generally simple, the audit should not take a long time. You may want to develop a simple checklist; Exhibit 6-10 provides a sample format.

Once you have the checklist, you, your chief operator, or some other person who is knowledgeable about your process, singly or as a team, should walk through the facility and check on relevant items, writing down comments and recommendations. For example, you may want to talk with employees to determine if they have been trained and are familiar with the procedures.

You must respond to each of the findings and document what actions, if any, you take to address problems. You should take steps to correct any deficiencies you find.

You may choose to have the audit conducted by a qualified outside party. For example, you may have someone from another part of your company do the audit or hire an expert in your process. If you do either of these, you should have an employee who works with or is responsible for the process accompany the auditor, both to understand the findings and answer questions.

Again, the purpose of the compliance audit is to ensure that you are continuing to implement the risk management program as required. Remember, the risk management program is an on-going process; it is not a set of documents that you develop and put on a shelf in case the government inspects your site. To be in compliance with (and gain the benefits of) the rule, procedures must be followed on a daily basis; documents must be kept up to date. The audit will check compliance with each prevention program element and indicate areas that need to be improved. You may choose to expand the scope to cover your compliance with other parts of the rule and the overall safety of your operation, but you are not required to do so.

WHAT KIND OF DOCUMENTATION MUST I KEEP?

You must keep a written record of audit findings and your response to those findings and documents that deficiencies have been corrected. You must keep the two most recent audit reports, but you need not keep a report that is more than five years old. You may also want to keep a record of who conducted the audit, but you are not required to do this.

WHERE TO GO FOR MORE INFORMATION

- Guidelines for Auditing Process Safety Management Systems, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1993.

Q & A
AUDITS

Q. Does the compliance audit requirement cover all of the Part 68 requirements or just the prevention program requirements?

A. The compliance audit requirement applies only to the prevention programs under Subpart C. If you have a Program 2 process, you must certify that you have evaluated compliance with the Program 2 prevention program provisions at least every three years to verify that the procedures and practices developed under the rule are adequate and are being followed. You may want to expand your audit to check other part 68 elements, but you are not required to do so.

EXHIBIT 6-10
SAMPLE AUDIT CHECKLIST
FOR SAFETY INFORMATION AND HAZARD REVIEW

Element	Yes/No/NA	Action/Completion Data
Safety Information		
MSDSs up-to-date?		
Maximum intended inventory determined?		
Determined Safe upper and lower temperature? Safe upper and lower pressures? Safe process flow rates? Compositions?		
Equipment specifications Tanks? Piping? Pressure relief valves? Emergency shutoff valves? Gauges? Pumps? Compressors? Hoses?		
Hazard Review		
Has equipment been inspected to determine if it is designed, manufactured, installed, and operated according to industry standards and codes?		
Are the results of the inspections documented?		
Have inspections been conducted after every major change?		

6.8 INCIDENT INVESTIGATION (§ 68.60)

Incidents can provide valuable information about site hazards and the steps you need to take to prevent accidental releases. Often, the immediate cause of an incident is the result of a series of other problems that need to be addressed to prevent recurrences. For example, an operator's mistake may be the result of poor training. Equipment failure may result from improper maintenance or misuse. Without a

thorough investigation, you may miss the opportunity to identify and solve these problems.

WHAT DO I NEED TO DO?

You must investigate each incident which resulted in, or could have resulted in, a catastrophic release of a regulated substance. A catastrophic release is one that presents an imminent and substantial endangerment to public health and the environment. Exhibit 6-11 briefly summarizes the steps you must take for investigating incidents. You should also consider investigating minor accidents or near misses because they may help you identify problems that could lead to more serious accidents; however, you are not required to do so under part 68.

EXHIBIT 6-11
INCIDENT INVESTIGATION REQUIREMENTS

U **Initiate an investigation promptly**.	Begin investigating no later than 48 hours following the incident.
U **Summarize the investigation in a report.**	Among other things, the report must identify the factors contributing to the incident. Remember that identifying the root cause may be more important than identifying the initiating event. The report must also include any recommendations for corrective actions. Remember that the purpose of the report is to help management take corrective action.
U **Address the report's findings and recommendations.**	Establish a system to address promptly and resolve the incident report findings and recommendations and document resolutions and corrective actions.
U **Review the report with your staff and contractors.**	You must share the report - its findings and recommendations - with affected workers whose job tasks are relevant to the incident.
U **Retain the report.**	Keep incident investigation summaries for five years.

HOW DO I START?

You should start with a simple set of procedures that you will use to begin an investigation. You may want to assign someone to be responsible for compiling the initial incident data and putting together the investigation team. If you have a small facility, your "team" may be one person who works with the local responders, if they were involved.

The purpose of the investigation is to find out what went wrong and why, so you can prevent it from happening again. Do not stop at the obvious failure or "initiating event" (e.g., the hose was clogged, the operator forgot to check the connection); try to determine why the failure occurred. In many cases, the underlying cause will be what matters (e.g., the operator did not check the connection because the operating procedures and training did not include this step). If the accident occurred because of operator error, you should determine if the operator made the mistake because he or she had been trained inadequately or trained in the wrong procedures or because design flaws made mistakes likely. If you write off the accident as operator error alone, you miss the chance to take the steps needed to prevent such errors the next time. Similarly, if equipment fails, you should try to decide whether it had been used or maintained improperly.

Remember, your goals are to prevent accidents, not to blame someone, and correct any problems in your prevention program. In this way, you can prevent recurrences.

In some cases, an investigation will not take long. In other cases, if you have a complex facility, equipment has been severely damaged, or the workers seriously hurt, an investigation may take several days. You should talk with the operators who were in the area at the time and check records on maintenance (another reason for keeping logs). If equipment has failed in an unusual way, you may need to talk to the manufacturer and your trade association to determine if similar equipment has suffered similar failures.

You must develop a summary of the accident and its causes and make recommendations to prevent recurrences. You must address each recommendation and document the resolution and any actions taken. Finally, you must review the findings with operators affected by the findings.

WHAT KIND OF DOCUMENTATION MUST I KEEP?

You must maintain the summary of the accident investigation and recommendations and document resolutions and corrective actions. A sample format is shown in Exhibit 6-12 that combines all of these in a single form. Note that the form also includes accident data that you will need for the five-year accident history. These data are not necessarily part of the incident investigation report, but including them will create a record you can use later to create the accident history.

WHERE TO GO FOR MORE INFORMATION

Although the reports below target the chemical industry, you may find useful information in them:

- *Guidelines for Investigating Chemical Process Incidents*, Center for Chemical Process Safety of the American Institute of Chemical Engineers 1992.

- *Guide for Fire and Explosion Investigations* (NFPA 921), National Fire Protection Association.

EXHIBIT 6-12
SAMPLE INCIDENT INVESTIGATION FORMAT

Ammonia Tank Release		
Date: May 15, 1998; 3 pm	Substance: Ammonia	Quantity: 2 tons
Duration: 2 hours	Weather: 82 F, 8 mph winds	Date Investigation Started: May 16, 1998
Description:	Unloading hose split open and spilled substance; operator was in the main building and failed to notice spill for several minutes	
Findings	**Recommendations**	**Actions**
Hose split because the pressure was too great	Replace hose with higher pressure hose Revise procedures for checking on pressure	Replaced hose as recommended; revised procedures; conducted training on new procedures
Operator failed to stay at the tank during loading	Conduct refresher training to stress necessity of remaining at the tank during loading	Refresher training provided; safety meetings added and held on a monthly basis to review safety issues
Tank required manual shutoff	Determine if automatic shutoff valve is feasible	Automatic shutoff valve installed

6.9 CONCLUSION

Many of you will need to do little that's new to comply with the Program 2 prevention program, because complying with other Federal rules, state requirements, and industry-specific codes and standards results in compliance with many Program 2 elements. And if you've voluntarily implemented OSHA's PSM standard for your Program 2 process, you'll meet the lesser Program 2 prevention program requirements. No matter what choices you make in complying with the Program 2 prevention program, keep these things in mind:

- Integrate the elements of your prevention program. For Program 2 owners and operators, a major change in any single element of your program should lead to a review of other elements to identify any effect caused by the change.

- Make accident prevention an institution at your site. Like the entire risk management program, a prevention program is more than a collection of

written documents. It is a way to make safe operations and accident prevention the way you do business everyday.

- Check your operations on a continuing basis and ask if you can improve them to make them safer as well as more efficient.